

**METHOD AND SYSTEM
FOR E-COMMERCE FREIGHT MANAGEMENT**

TECHNICAL FIELD

The invention relates to a method and system as a communication utility, freight management transportation tool, engine clearinghouse for specified individual or en masse entered single or group / multiple delivered, specified load / loading / tour, equipment / product / service requests by shippers matched to automatic or individually submitted fixed or variable rates / bids for carriage / purchase, while indicating equipment availability and affording optimization by qualified carriers using an electronic computer system with network access for both shippers and carriers along with integrating related freight transportation logistics services for modal and intermodal service on a national and international basis. The network utilizes individually or collectively the Internet, e-mail, electronic data interchange (EDI), a dial-up telephone network, interactive voice response (IVR), computer templates and facsimile (fax).

DESCRIPTION OF THE BACKGROUND ART

In the past, freight commerce between shippers and carriers has involved individual to individual telephone-based communications as well as telephone-based clearinghouses or third party companies employing few to many people to receive requests for shipments and to find available carriers. The shipping industry has relied on many oral communications along with handwritten forms and notes. This has led to widespread

mistakes and miscommunication in the areas of load, loading, equipment, routing, delivery, billing and payment information. Such verbal and manual processes have been inefficient, time consuming, personnel intensive and expensive.

The introduction of desktop computers has made more data available to agents handling shipment requests, but the process for matching shippers' requests for shipping loads to freight carriers' critically important equipment availability and prices has yet to be truly addressed. Present products and systems that indicate fixed or variable established carrier lane rates for selection by shippers without guaranteed equipment availability are quite limited at best and can actually fail at high volumes. Many companies spend most of their communication time and efforts in the very attempt to ascertain carrier equipment availability. In this effort some use telephone and facsimile (fax) communication in conjunction with computer database information. Other systems are known generally to be in development with some recently completed, but these systems, while beginning to incorporate some of the basic portions of this invention that were an integral part of this invention at a time substantially prior to their offerings as components of the initial parts of the full concept development of this invention, differ greatly from the methods, system and capabilities of this invention in very important aspects. Companies are rushing to the marketplace with services beginning to parallel or outright copy certain aspects or portions of this invention but in their narrow view actually exacerbate the fragmentation in the industry. This will eventually create a proliferation of thousands of unrelated, non-integrated web sites causing a communications overload. Their directions lack the core requirements and approach to effect a comprehensive universal freight transportation management communication

utility method for shippers and carriers along with truly electronically integrating systems, networks, and users. Even present Electronic Data Interchange (EDI) and E-mail approaches just cannot address the requirements to meet the needs in the burgeoning freight transportation communication environment.

There also exist certain electronic bulletin boards for posting loads and/or equipment. These are still even more basic concepts of communication. The information posted on these bulletin boards is developed using the non-automated methods mentioned above as well as computer transmissions. As with other systems, posting services differ even more so from this invention. Such services typically just list origin and destination cities and states, the type of equipment needed, pick-up date, the shipper or carrier name along with a telephone number of same requesting an interested carrier to reply. Some services also indicate a price that would be paid along with the type of commodity being shipped. Recently some of these services have placed these types of bulletin boards on the internet to access carriers. A few of such posting services also let carriers list their names and telephone numbers to offer their equipment at certain locations for shippers to reply. These are very basic services with non-qualified, non-anonymous yet typically unknown participants.

SUMMARY OF THE INVENTION

It has taken a very extended time period, an appreciable amount of money and an enormous effort to develop the concept of the full operational elements of this invention that addresses such a unique and never before available total approach with a freight

transportation logistics management method and system.

The freight management system and method is a market neutral, national / international universal computer system / network platform concept, communication utility, load arranging clearinghouse and load / equipment optimization, rate / bid, equipment availability engine for shippers and carriers in the freight transportation industry. It provides a business to business (B2B) internet environment serving shippers, third party logistics companies (3PL), brokers, broker carriers, carriers, freight forwarders, warehouseers and other related industry parties in which qualified carriers indicate the extremely important equipment availability and offer carriage or purchase by automatically or individually submitting fixed or variable rates and/or bids to shippers for individual or group / multiple delivered, specified load / loading / tour, equipment / product / service requirements for truckload (TL), less-than-truckload (LTL), container load (CL), and less-than-container load (LCL) freight.

The system allows for shippers and carriers to view any combination of load, tour, equipment, product, and services screens at the same time on one computer screen permitting a true operational advantage in selecting the most advantageous group of components in these related areas.

Information from shippers relative to loads, loading, products, etc. can be entered individually by completing request forms either by individual keystrokes, by resubmitting previously entered saved or archived forms, either in total or as revised or updated, or completely automatically by the direct transfer of one to thousands of load and/or product files from the shippers computer databases en masse to the system which via application transfer programs will automatically enter the required information selected from the

fields of database information, thereby, completing each of the individual forms without the need for any shipper keystroke entries. This is a very important element saving considerable time and effort while eliminating the potential personnel errors in re-entering such individual or volumes of previously entered information.

This system also affords the integration of the various aspects of other freight management software / internet applications creating a unique transportation tool to address the entire fractionalized / assorted individual freight transportation industry offerings / products including order entry, procurement, tracking, tracing, proof of delivery, order visibility, warehouse fulfillment, insurance, accounting, billing, finance, and other industry services by providing such access through one proprietary industry portal or grand master bulletin board system.

The aforementioned are crucial elements in providing a usable environment eliminating the need for companies working with thousands of clients to individually address an unwieldy conundrum of multiple individual and/or system computer / internet sites. The system platform provides the foundation on which such enterprise application integration (EAI) resides addressing internal and external process / logic and data exchange requirements, all base keyed to the system numbers interrelated to the individual numbering parameters of each separate integrated application system / network or individual user company. The use of various languages (Extensible Markup Language (XML), HTML, Dynamic HTML, Pearl, SQL, Java Script, C, flat files, FTP, etc.) on various platforms (Unix, HP-UX, AIX, NT, Linux, Solaris, etc.) on databases (Oracle, etc.) distributed in various manners (Internet / E-mail, EDI, fax. etc.) must all be able to relate and communicate both data and process logic between sites to effect true E-

commerce business-to-business community integration.

The system's user internet sites including individual, group and master boards, both public and private, reside on a Grand Master Bulletin Board which with passwords, codes, multiple level and area filtering and sorting by such elements as corporations, individual names, load / loading, equipment, product, service parameters, etc. the separate individual user bulletin boards are accessed. This grand master bulletin board concept is an extremely important element in the entire process because it permits total integration and communication between any and/or all of the system users. One user board might have eight (8) columns; whereas, another might have eighty (80) columns. Yet, they still can communicate through the commonality of the grand master board that has an unlimited number of columns (i.e.: The grand master board contains all of the columns, all of the areas, all of the services and offerings from all of the individual boards.), affording total customization of user boards as desired. All elements developed or set for a particular user are part of the grand master board, for any individual site is merely a viewing of a specific portion of the whole. A user's accessibility rights determine just how much of the total board may be seen. Also, the grand master board will be duplicated on multiple sites and at multiple locations all fully integrated and continually updated with the same information affording both system redundancy and site access insuring greater availability and higher speed processing.

A private system internet site is referred to as a Private Access Network (PAN) as opposed to a general public site for use by individual organizations and their clients and/or service providers. Requests for Bids (RFB) are submitted by shippers to their own selected/contracted carriers out of view of the general public industry area. These sites

can be customized for each individual user company. User corporate names and corporate logos appear on these sites. The user's clients therefore address their site for business – the system provides a service operating and maintaining the engine supporting the site but remaining wholly in the background. That the sites appear as the shippers as opposed to the system's is very important for it maintains the individual corporate operational autonomy with their clients, protecting relationships through the utility nature of their own private system as opposed to any third party control which could or be perceived as a potential competitor having an opportunity of eroding the core of their company business -- the valuable hard won client bases. Bulletin board column headings can be modified as well as additional columns, screens and form requirements can be incorporated into a PAN. Multiple levels of integration of other application programs are available as well as dual (mirrored) networks allowing integrated shipper to shipper's 3PL to shipper's and 3PL's carrier bases all through the 3PL as the controlling entity. Shippers can indicate to whom load information is sent from one carrier to thousands of carriers, from specific groups of carriers to individual 3PLs (even competitors when such is in the interests of both parties).

A major carrier could very well be a member or user of hundreds or even thousands of separate shipper and/or third party logistic company (3PL) internet sites with either private or public access on which that carrier would have an opportunity to provide rates or bids to move various freight or loads for individual and multiple shippers. If that carrier had to address each company's internet site individually, such a process would be too inefficient to be commercially practical. Present telephone communications would be more efficient. Such a carrier needs to be able to integrate such sites to allow their

viewing on one master bulletin board site for the carrier that can be effectively sorted and filtered along with multiple on screen bulletin board presentations to first allow for efficient handling of the vast amount of information that must be addressed, on many occasions in real time, second to permit desired freight and equipment optimization and third to produce internal time / cost / personnel savings for the carrier. The carrier would be assigned separate member numbers, authorization and location codes for each site, all of which would be tied into one master member number and authorization code permitting the carrier automatic full access to load information to all of the sites with just the main numbers. The carrier's master board would in turn be part of the grand master board of the system allowing the carrier to interact at its discretion with others, even competitors, using the system.

Over and above passwords and authorization codes, users may choose to encipher some or all of their communications with specific parties capable and desiring to receive same in such an electronic encryption format, as an additional measure of security.

Methods of communication include, but are not limited to, Internet, e-mail, electronic data interchange (EDI), telephony (IVR-Interactive Voice Response), computer templates, fax and telephone conversation.

Addressing one representative area of the invention providing a freight management system and method for matching loads from shippers with available equipment of carriers, first begins by creating and then inputting into a central processing system a request for bids, rates and communication (RFB) from a shipper for shipping a particular load. Then, an invitation to bid, rate and or communicate (ITB) for shipping at least one load is automatically created by the system from the submitted RFB and electronically

transmitted from the central processing system to at least one or a plurality of qualified carriers. The carriers access the ITBs through their bulletin boards of shipper loads for which they are qualified and/or selected to view and/or available on the open market. At least one of the carriers then enters a bid and/or rate for each load desired which are then submitted and electronically received at the central processing system. One or a plurality of qualified bids and/or rates are then electronically transmitted to the shipper. The shippers access the submitted bids and/or rates through their bulletin boards of their requested loads. Assuming the shipper selects one of the bids and/or rates, the shipper then indicates the bid and/or rate selection that is electronically transmitted and received at the central processing system. The shipper is then notified of the identity and telephone number of the carrier whose bid and/or rate was selected. The parties can then exchange any freight shipping documents necessary to confirm the transaction.

The system may operate anonymously until the shipper is notified of the carrier identity, or the system may be operated non-anonymously.

Various methods of electronic communication may be employed by the shipper and the carrier including, Internet communication, dial-up network communication, e-mail, electronic data interchange (EDI), interactive voice response (IVR or telephony) or facsimile (fax) transmission from facsimile machines or personal computers.

The system offers various reports including an electronic "best 7" report of the seven lowest-priced bids and/or rates or multiples of seven to ship a particular load, a shippers' bulletin board of available load offerings, and a carriers' bulletin board of available invitations for bids and/or rates.

Online data entry is restricted to authorized users only and data transmissions may be

encrypted to ensure security.

Other objects and advantages of the invention, besides those discussed above, will be apparent to those of ordinary skill in the art from the description of the preferred embodiment which follows. In the description, reference is made to the accompanying drawings, which form a part hereof, and which illustrate examples of the invention. Such examples, however, are not exhaustive of the various embodiments of the invention, and therefore, reference is made to the claims that follow the description for determining the scope of the invention.

BRIEF DESCRIPTION OF THE DRAWINGS

Fig. 1 is schematic diagram of the method of the present invention;

Fig. 2 is a block diagram of the central processing system and network used to carry out the method of Fig. 1;

Figs. 3a-3b illustrate a simple request for bids, rates and communication (RFB) form of a type that would be displayed on the screen of a computer connected for communication with the central processing system of Fig. 2;

Figs. 3c-3m illustrate a complete request for bids, rates and communication (RFB) form of a type that would be displayed on the screen of a computer connected for communication with the central processing system of Fig. 2 with the understanding that RFBs with more or less information as shown in either of these examples of the simple or the complete RFB are possible depending upon the requirements of the shipper;

Fig. 4 is an invitation to bid, rate and communicate (ITB) form of a type that would be

displayed on the screen of a computer connected for communication with the central processing system of Fig. 2;

Fig. 5 is a bid and/or rate summary report (Best 7) of a type that would be displayed on the screen of a computer connected for communication with the central processing system of Fig. 2;

Fig 6 is a shipper's bulletin board of a type that would be displayed on the screen of a computer connected for communication with the central processing system of Fig. 2 with the understanding that additional buttons linking to other service providers, services, shippers and carriers can be included with those buttons shown as well as additional sorting and/or filtering parameters;

Fig. 7 is a carrier's bulletin board of a type that would be displayed on the screen of a computer connected for communication with the central processing system of Fig. 2 with the understanding that additional buttons linking to other service providers, services, shippers and carriers can be included with those buttons shown as well as other sorting and/or filtering parameters;

Fig. 8 is a notification of acceptance report of a type that would be displayed on the screen of a computer connected for communication with the central processing system of Fig. 2;

Fig. 9 is a shipper profile form to be completed by the shipper either on paper forms and faxed for computer entry or on a form that would be displayed on the screen of a computer connected for communication with the central processing system of Fig. 2, both of which are used to input shipper data into a database in the central processing system of Fig. 2; and

Fig. 10a-10e illustrate portions of a carrier profile form to be completed by the carrier either on paper forms and faxed for computer entry or on a form that would be displayed on the screen of a computer connected for communication with the central processing system of Fig. 2, both of which are used to input carrier data into a database in the central processing system of Fig. 2.

Any or all of the aforementioned figures can be customized for individual shippers and carriers with including but not limited to personalized corporate names, logos, column titles, number of columns, cell names, etc.

DETAIL DESCRIPTION OF THE PREFERRED EMBODIMENT

The term "bid(s)" used throughout this application refers to either a rate(s) (amount for lane and/or freight carriage set by carrier(s) or set (fixed) by established contracts between an individual shipper(s) and carrier(s)) or refers to an actual bid(s) by a carrier(s) to move freight or purchase products and/or services as requested by a shipper(s) separate from any predetermined rate.

The term "corporation" includes both companies and individuals on the system which when using the system are considered to be either a shipper or a carrier. A corporation can be either a shipper or a carrier at any particular time depending entirely on how it is using the system.

Shippers include: Shipper (Corporation offering loads or freight to be moved by carriers)
(But are not Shipper (Corporation offering/requesting one or more legs of a tour to
limited to) another shipper)

[illegible]

tour

agency

Shipper (Corporation as a Fleet Truck carrier)

Shipper (Purchasing Products)

Shipper (Purchasing or utilizing Services)

container load (LCL)

Warehousers (Corporations offering to move and/or store freight)

(consignee) or third party.

plural of each respectively.

shippers.'

unique/proprietary transportation tool as an internet engine/platform utility allowing for

the communication of freight transportation information between thousands of participants simultaneously on a national and international basis addressing basic or complete load/loading specification, basic or complete carrier/equipment qualification, rates/bidding on single/multiple loads/equipment/products/services, tours/optimization, equipment availability, and other related services.

Strategic alliances/partnerships/joint ventures with other companies offering industry internet services will address areas such as tracking, tracing, proof of delivery, order visibility, warehouse fulfillment, accounting and procurement functions will all be integrated into the system through the master bulletin board approach. Complete process integration will address and document inter-application along with user communications permitting the various computer languages and infrastructures to transfer data.

The system and method as a communication utility will allow companies to address their clients directly through their own customized Private Access Network (PAN) internet sites/corporate logos/identities with the system with or without alliances remaining in the background while remaining open to other PAN's as well as the open networks. The "brick and mortar" companies retain their autonomy and control relative to their business offerings and their clients.

Fig. 1 shows a central processing system 10 that is connected via an electronic network 11 to many shippers and carriers. For the purpose of Fig. 1, a networked computer 12 is shown for one shipper and another networked computer 13 is shown for one carrier, it being understood that many other shippers and carriers can be similarly connected. These computers 12, 13 can be operated with Windows operating systems available from Microsoft and include a Web browser application for communication on

the Internet. Of course, it is understood that other types of operating systems supporting Web browser applications can also be employed. And in alternative modes of operation, the computer 12, 13 are operated with computer-generated or fax-transmitted forms in a non-browser environment, and the data from these forms is transmitted in data files or facsimile files by e-mail or by a dial-up type of network or interactive voice response (IVR).

In any event, the shipper and the carrier first submit data to initialize the database 14. For the shipper this is largely shipper identification data, shipper traffic department type data, shipper employee size data, shipper revenue size data, and shipper financial data. For the carrier this includes data such as but not limited to carrier identification data, carrier equipment data, carrier financial condition data, carrier service data, carrier service area data, carrier driver data, carrier hazardous license data, carrier insurance data and carrier rules and charges data. This data has been compiled in a database 14 stored and operating in the central processing system 10. Associated with this database are certain groups of logic or program instructions represented by blocks 15, 16 and 17 in Fig. 1.

A transaction using the method or process of the invention is initiated when the shipper 12 creates and then transmits a request for bids, rates and communication (RFB) 18. The RFB 18, along with the carrier data, is processed utilizing a calculate and find logic block 15 to 1) calculate mileage distances for shipment, if desired by the shipper 2) to find a number of "qualified carriers" that meet the shippers requirements or that are on a list of carriers for the load or load type who should receive the invitation to bid, rate and communicate (ITB) 19, and 3) to develop the invitation itself. The ITB 19 is then

electronically transmitted according to a distribution list 17 of qualifying or specifically requested carriers 13. These carriers 13 receive the ITB 19 that is accessed through the carriers' bulletin boards, and have the option to submit a bid and/or rate. If they complete the bid, rate and communicate (ITB) form, this is electronically transmitted as a bid and/or rate 20 to the central processing system 10. The central processing system 10 then analyzes the bids and/or rates by executing logic block 16 to select a group of the "best seven" bids and/or rates. The number of selected bids is, of course, variable and optional, but the number seven is the group size shown in a "Best 7" 21 bid and/or rate report on a typical open network. However, additional groups of seven bids and/or rates can be seen beyond the initial seven (i.e.: 14, 21, 28 etc.) can be shown on private access networks (PAN). The bids and/or rates included in the "Best 7" report 21 then is electronically transmitted to the shipper 12. The shipper 12 receives the "Best 7" report 21 which is accessed through their bulletin board and then has the option to indicate a bid and/or rate selection 22 of one of the bids and/or rates and electronically transmit that bid and/or rate selection 22 to the central processing system 10. The central processing system 10 will, in turn, electronically communicate a notice of the bid and/or rate selection 23 to the shipper 13 which includes the name and telephone number of the carrier, if this is a group of anonymously communicating shippers and carriers. On the private access networks (PAN) the carriers are aware of the name of the shippers prior to submitting bids and/or rates and the carriers names are revealed to the shippers on the best 7 reports prior to the shippers making the final carrier selections.

Referring next to Fig. 2, central processing system 10 more particularly includes two or more CPU's 24 and 25, operated as database host computers, which are connected to a

disk memory system 26 available from Sun Microsystems (Sun), Hewlett-Packard (HP), International Business Machines (IBM), Data General (DG), etc.. The CPU's 24, 25 operate with Unix (i.e.: DG, HPUX, AIX (IBM), etc.), NT (Microsoft), Linux, Solaris Intel, Solaris Sparc, etc. operating systems. The database 14 (Fig. 1) is provided by a database management application program (DBMS), such as the various Oracle versions. The blocks of logic 15, 16, and 17 represented in Fig. 1 include application routines written in the C, Pearl, JAVA Script, SQL, HTML, Dynamic HTML, XML, etc. programming language to supplement routines available for the Oracle DMBS 14.

The database host computer 24, 25, 26 are connected to a local area network (LAN) including network media 27, a network server computer 28, operating under a Novell, NT, etc. network operating system and a plurality of client desktop computers 29 running the Windows 95, 96,97, 98, 2000 operating systems available from Microsoft among others and including Web browser applications for communicating on the Internet.

In this particular embodiment, an Internet (Worldwide Web) server 30 is provided by Internet Service Providers (ISP), at sites remote from the database host computers 24, 25, 26. It would, of course be possible, and is considered within the scope of the invention to provide a Web server at the same site as the database host computer 24, 25, 26. And while it is conventional in the e-commerce industry today to provide databases in separate CPU's running behind a firewall in the Web server 30, it is contemplated that the invention could be practiced on a single computer or CPU having sufficient capacity to perform all of the Web communication and database functions described herein.

For the purpose of completing the description of the third party Web hosting arrangement, the Web site server 30 is connected via the World Wide Web 31 (also

businesses operated on the system in the capacity of a “shipper” as described herein.

The shippers may also list any companies and/or individuals with whom they will not do business.

Fig. 10a-10e illustrates a multi-page carrier profile data form which on the first page (Fig. 10a) identifies the carrier, and provides phone numbers, e-mail addresses and facsimile numbers, a security authorization number, and certain financial and size data. On the second page (Fig. 10b), safety information, insurance information, geographic areas of operation, and types of services offered are provided along with information on the types of loads handled and type of carrier. As used herein, “carrier” means any of the types of listed members operated as a “carrier” on the system described herein. The third page (Fig. 10c) provides a commodity code listing for indicating the commodities desired for carriage. The fourth page (Fig. 10d) provides a matrix for identifying types of trailer equipment. It is noted here that the term “load” as used herein contemplated not only full trailer loads, but also partial trailer loads and container loads. The fifth page (Fig. 10e) provides for entry of carrier rules and charges. The identification of this data for the carrier profile is meant to be exemplary but not exhaustive. The carriers may also list any companies and/or individuals with whom they will not do business.

There are also simple and complete Request For Bid (RFB) formats for shippers to enter information on load/loading/equipment/carrier requirements for carriers to review.

Each format includes drop boxes for selecting alternative options, eliminating individual key stroke entries for the multiple offerings. All numbers can be indicated in English or metric system to relate with international carriage. Multiple languages can be accommodated.

Referring next to Fig. 3, the system and method of the present invention begins operation when a shipper 12 creates and submits a request for bids, rates and communication (RFB) 18 to ship a load. A simple RFB 18 of the type displayed in a window of a Web browser page as seen in Figs. 3a and 3b. In the upper area 45, labeled "Load Description" are data entry boxes or pull down menus for entering data describing the commodity being shipped, the shipper load ID, the weight of the load and the number of units, the number of times to ship the load (if multiple shipping is desired), maximum acceptable bid or rate limit in dollars, a matching method for determining which carriers can view the RFB (normal (qualified carriers), affiliated carriers (only, excluded or specific), or open bidding (all carriers)), the shipper's last acceptance date and time (mm/dd/yy and 24 hour local hh:mm) for the carrier to submit the bid or rate, the date and time (mm/dd/yy and 24 hour local hh:mm) as dictated by the shipper through which the carrier must hold open the bid or rate, a pallet exchange indication if required, the number of pallets to be exchanged, whether or not the maximum acceptable bid or rate limit should be shown to bidders in the ITB and a distribution list code (references the actual lists of names of those carriers permitted to see the information relative to the RFB).

In the next area 46, labeled "Load Destinations", there are a number of rows with boxes and pull-down menus for entering data designating origin and destination (city, state, country and zip or postal code), preferred pickup and delivery dates and times (mm/dd/yy and 24 hour local hh:mm) with plus and/or minus hours or minutes (hh:mm) for earlier or later allowable pickup or delivery timeframes, and intermediate stops (locations between the origin and destination along with similar pertinent information).

(1,2,3), carrier size (1 to over 100,000), on-time delivery (50% to 99%), damage free delivery (50% to 99%), special services (extensive list), Dun & Bradstreet with CCA rating, Moody's rating, standard & Poor's rating, Department of Transportation (DOT) rating, IATN rating, carrier insurance (auto liability, general liability, combined, cargo, excess liability), Best Company insurance ratings and size, workers compensation and employee liability, van trailers (aluminum, FRP, plate, can), number of trailer wheels, number of trailer axles, extendibles, tandems, doors (overhead, swing, side), lift gate service, number of trailers, heated, sleeper tractor, equipment maintenance (in-house, external), pup (similar to trailers), converter dolly, container (similar to trailers), straight chassis, age of equipment (trailers, pups, containers, tractors), carrier load type experience (years), driver experience (driving, load type, accident rate, moving violations, all in years), driver safety program, drug screening, packaging (cardboard, plastic, metal, glass, wood, bulk, drum, tank, other), load method (slip-sheet, palette, skid, individual, shrink-wrap, strap, shelf, other), size of pieces or pallets (length, width, height), weight of pieces or pallets (net weight, legal weight, gross weight), NMFC class and density of pieces or pallets (1/500 to 50/50), total size of load (length, width, height), method of securing load (straps, brackets, ropes, canvas, pads, chains, gates, other), bulk loads (cubic volume, weight), liquid loads (volume), gas loads (volume), NAFTA and Global Harmonized Tariff Schedule, load and count (shipper, driver, lumpers and time), unload and count (consignee, driver, lumpers and time), requested load bids (times per day, week, month for number of days, week, months), additional load requirements (mobile storage, warehousing, local pick-up and delivery, break bulk, consolidation, trailer spotting, trailer shuttle. The aforementioned are shown in Fig. 3c through Fig. 3m.

It should be understood that term “request for bids, rates and communication” may include requests for bids and/or rates with more or less than the above-described information on either the simple or complete RFB.

When the RFB 18 is transmitted electronically to a mail box or directly or faxed, as previously discussed in relation to Fig. 1, an ITB 19 is developed at the central processing system 10 and transmitted to carriers 13. An example of the ITB form 18 is seen in Fig. 4. At the top of the form in a first area 50 is a logo, name, phone and fax number for the proprietor of the invention and a reference number for the transaction. In a second area 51, there is a bid and/or rate entry box, a submit bid and/or rate button and the last accepted bid and/or rate time. The load origin, destination and any stops are then listed in area 52. This is followed by an area 53 with shipper profile information, but not the identity of the shipper. This is followed by an area 54 with load type and transport mode type from the RFB 18. This is followed by any specification 55 on trailer equipment. This is followed by additional information 56 including, the commodity to be shipped, the time for which the bid and/or rate must be held open, the number of pallets involved and with of the load. It should be understood the term “invitations for bids, rates and communication” may include invitations for bids and/or rates with more or less than the above-described information.

A carrier responds to the ITB 19 by entering a bid and/or rate amount in the bid and/or rate entry box 57, and activating the submit bid and/or rate button 58 to transmit the form, which now includes the bid and/or rate data, back to the central processing system 10 via the Internet or one of the alternative modes described above. This becomes the bid and/or rate 20 represented in Fig. 1. In contrast, when carriers enter bids and/or rates for

moving empty containers or purchasing products or services, etc., additional information boxes such as number and unit amounts are provided on other bid/rate ITB forms and must be filled in prior to a bid and/or rate being submitted. These forms can also allow the carrier to indicated how long, by date and time, the bid and/or rate will be held.

In one variation of this method and system, the ITB 19 is transmitted to a third party/broker in a group of load listings known as a carrier's bulletin board, which is shown in Fig. 7. When a line in the bulletin board is selected and activated in the from in the browser window, an invitation to bid and/or rate for as shown in Fig. 4 can be viewed. The third party can then offer the load to one or more selected carriers, add any markup or service fee and submit the bid and/or rate to the central processing system 10. Of course, where there is not third party/broker, such a bulletin board could also be viewed directly by a carrier 13.

Fig. 6 illustrates a shipper's bulletin board in which each line represents and invitation to bid and/or rate 18 and a bid and/or rate report 21.

The simple or basic bulletin board columns, features, system/ network integrations include but are not limited to: 1. Origin/destination city/state, pickup/delivery date/time, stops, commodity, equipment type/length, load weight, price, shipper / carrier numbers and IATN Trans/Log+ numbers. 2. Sort load/equipment by column headings in order of preference (i.e.: 1,2,3...10, etc.). 3. Filter loads/equipment by actual city and/or state names, etc.(i.e.: Atlanta, paper, air-ride van, 53ft., etc.). 4. Enter individual loads/ equipment by individual key strokes one load at a time or enter multiple loads (10,100,1000, etc.) in batches automatically by electronic transfer from computer databases onto Request for Bids, Rates and/or Communication Forms (RFB). 5.

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Invitation to bid, rate and/or communicate form (ITB) with additional load/loading/location/etc. information as needed allows the carrier to submit a rate or bid, both which indicate all important equipment availability. 6. Best 7 forms returned to the shipper indicates from 0 to 100+ carrier rates/bids per load request in sets of seven along with the carriers' qualifications, rules and charges, names, etc. for final carrier selection by the shipper. Internet software applications offered by other service providers and/or member (shippers and/or carriers) system users that can be integrated into the system include but are not limited to procurement, order entry, tracking, tracing, proof of delivery, order visibility, warehousing fulfillment, accounting, billing, finance, etc. 8. All files/information can be saved, archived, or deleted as well as utilized to generate reports. 9. Multiple screens can be viewed together to aid in load/equipment optimization. 10. Other users, networks and systems can be accessed through the grand master board via any individual or master board with the proper authorization.

To Sort, Filter, Save, Archive or Delete on a Bulletin Board:

The individual selected bulletin board(s) can be "Sorted" or "Sorted and Filtered" or "Filtered" by DATA: Origin City, Origin State, Destination City, Destination State, Pick-up Date, Delivery Date, Stops, Equipment Type, Equipment Length, Maximum Bid, System Number, etc.

A "Sort" example: A number from 0 to 10 would indicate which column by title (i.e.: origin city, origin state , etc.) is to be sorted on first, second third, etc. on the bulletin board in order of importance to the user for either a load, available equipment, tours,

Figure 1 consists of 11 subplots (a-k) showing the effect of 100 mg/kg/day of 17β-OH progesterone on various parameters in 10-day-old male rats. The y-axis for all plots is 'mg/kg/day' or 'mg/kg/day' or 'mg/kg/day' or 'mg/kg/day' or 'mg/kg/day' or 'mg/kg/day' or 'mg/kg/day' or 'mg/kg/day' or 'mg/kg/day' or 'mg/kg/day' or 'mg/kg/day'. The x-axis for all plots is 'Day' from 0 to 14. The legend indicates that the solid line represents the control group and the dashed line represents the 100 mg/kg/day group. The 100 mg/kg/day group shows a significant increase in body weight, food intake, and water intake compared to the control group. The hormone levels (LH, FSH, T, P, 17β-OH progesterone, 17β-OH androstenedione, 17β-OH estradiol, 17β-OH estrone) are also significantly higher in the 100 mg/kg/day group compared to the control group.

One can also SAVE the “Sorting” selections and/or SAVE the “Filtering” selections and/or SAVE the “Bulletin Board” itself and/or ARCHIVE same and/or DELETE same by assigning “File Names” to the operations.

To Post & Select Equipment on a Load and/or Equipment Bulletin Board:

27

board (the bulletin board displays both loads and equipment).

Carriers enter information in a Request For Bid format (RFB) the same as shippers enter load information with the exception that in the origin city and destination city locations the carrier adds the prefix "EQUIP/" before the city or before a descriptive area. (i.e.: If a carriers equipment was available in Milwaukee, Wisconsin and the carrier wanted to move that equipment to Atlanta, Georgia the carrier would enter the following on the RFB: "EQUIP/MILWAUKEE" in the origin city location with "WI" in the origin state location and "EQUIP/ATLANTA" in the destination city location with "GA" in the destination state location.). Carriers can be specific, general or a combination of the two in the origins and/or destinations for their equipment utilization. (i.e.: A carrier could indicate that the equipment is available from a particular state to a particular state by entering "EQUIP/ANYWHERE" in the origin city location along with a particular state in the origin state location followed by "EQUIP/ANYWHERE" in the destination city followed by a particular state in the destination state location.)

Shippers may then view the board to locate equipment that meets their needs available in type, location, dates, etc. The shipper then reviews an invite to bid for the equipment that shows all of the carrier's equipment and/or other requirements. The shipper then can either agree on a fixed rate as dictated by the carrier included in the invite information or the shipper may place a bid amount that the shipper is willing to pay to the carrier to move the freight. Carriers then select the shipper whose load they wish to move at the agreed price. A shipper has the option of opening two or more identical load and equipment bulletin boards so that both are

Table 1. Demographic characteristics of the study population	
Age (years)	65.0 ± 10.0
Gender	
Male	50 (50.0%)
Female	50 (50.0%)
Education (years)	12.0 ± 2.0
Marital status	
Married	40 (80.0%)
Single	10 (20.0%)
Occupation	
Retired	30 (60.0%)
Unemployed	20 (40.0%)
Income (USD/month)	1,200 ± 300
Health status	
Good	30 (60.0%)
Fair	20 (40.0%)
Poor	10 (20.0%)
Comorbidities	
Hypertension	20 (40.0%)
Diabetes	10 (20.0%)
Cholesterol	15 (30.0%)
Arthritis	10 (20.0%)
Depression	5 (10.0%)
Medication	
Antidepressants	10 (20.0%)
Antipsychotics	5 (10.0%)
Mood stabilizers	5 (10.0%)
Other	10 (20.0%)
Duration of illness (years)	5.0 ± 3.0
Family history	
Present	10 (20.0%)
Absent	40 (80.0%)
Genetic testing	
Completed	10 (20.0%)
Not completed	40 (80.0%)
Insurance status	
Medicaid	30 (60.0%)
Private	20 (40.0%)
Uninsured	10 (20.0%)
Access to care	
Regular	30 (60.0%)
Irregular	20 (40.0%)
No access	10 (20.0%)
Healthcare utilization	
Primary care	20 (40.0%)
Specialty care	10 (20.0%)
Emergency	10 (20.0%)
Hospitalization	5 (10.0%)
Outpatient	10 (20.0%)
Telemedicine	5 (10.0%)
Healthcare costs	
Out-of-pocket	10 (20.0%)
Insurance	10 (20.0%)
Government	10 (20.0%)
Other	10 (20.0%)
Healthcare satisfaction	
Satisfied	20 (40.0%)
Dissatisfied	30 (60.0%)
Healthcare quality	
Good	20 (40.0%)
Fair	20 (40.0%)
Poor	10 (20.0%)
Healthcare access	
Good	20 (40.0%)
Fair	20 (40.0%)
Poor	10 (20.0%)
Healthcare equity	
Good	20 (40.0%)
Fair	20 (40.0%)
Poor	10 (20.0%)
Healthcare safety	
Good	20 (40.0%)
Fair	20 (40.0%)
Poor	10 (20.0%)
Healthcare effectiveness	
Good	20 (40.0%)
Fair	20 (40.0%)
Poor	10 (20.0%)
Healthcare efficiency	
Good	20 (40.0%)
Fair	20 (40.0%)
Poor	10 (20.0%)
Healthcare transparency	
Good	20 (40.0%)
Fair	20 (40.0%)
Poor	10 (20.0%)
Healthcare accountability	
Good	20 (40.0%)
Fair	20 (40.0%)
Poor	10 (20.0%)
Healthcare responsibility	
Good	20 (40.0%)
Fair	20 (40.0%)
Poor	10 (20.0%)
Healthcare integrity	
Good	20 (40.0%)
Fair	20 (40.0%)
Poor	10 (20.0%)
Healthcare ethics	
Good	20 (40.0%)
Fair	20 (40.0%)
Poor	10 (20.0%)
Healthcare professionalism	
Good	20 (40.0%)
Fair	20 (40.0%)
Poor	10 (20.0%)
Healthcare competence	
Good	20 (40.0%)
Fair	20 (40.0%)
Poor	10 (20.0%)
Healthcare communication	
Good	20 (40.0%)
Fair	20 (40.0%)
Poor	10 (20.0%)
Healthcare collaboration	
Good	20 (40.0%)
Fair	20 (40.0%)
Poor	10 (20.0%)
Healthcare partnership	
Good	20 (40.0%)
Fair	20 (40.0%)
Poor	10 (20.0%)
Healthcare leadership	
Good	20 (40.0%)
Fair	20 (40.0%)
Poor	10 (20.0%)
Healthcare innovation	
Good	20 (40.0%)
Fair	20 (40.0%)
Poor	10 (20.0%)
Healthcare research	
Good	20 (40.0%)
Fair	20 (40.0%)
Poor	10 (20.0%)
Healthcare education	
Good	20 (40.0%)
Fair	20 (40.0%)
Poor	10 (20.0%)
Healthcare training	
Good	20 (40.0%)
Fair	20 (40.0%)
Poor	10 (20.0%)
Healthcare development	
Good	20 (40.0%)
Fair	20 (40.0%)
Poor	10 (20.0%)
Healthcare improvement	
Good	20 (40.0%)
Fair	20 (40.0%)
Poor	10 (20.0%)
Healthcare change	
Good	20 (40.0%)
Fair	20 (40.0%)
Poor	10 (20.0%)

To Post Load(s) in a Tour on a Load and/or Equipment Bulletin Board:

Just as shippers can present loads and request bids and/or rates for hauling freight from carriers, shippers can request load(s) from other shippers for a leg(s) of a tour that they are trying to create so as to optimize equipment utilization and driver satisfaction for carriers which will result in savings and additional revenue for the shipper and the carrier respectively.

Shippers enter information in a Request For Bid format (RFB) the same as shippers enter load information with the exception that in the origin city and destination city locations the shipper adds the prefix “TOUR/” before the city or before a descriptive area. (i.e.: If the load desired was to be in Milwaukee, Wisconsin and the shipper wanted that load go to Atlanta, Georgia the shipper would enter the following on the RFB: “TOUR/MILWAUKEE” in the origin city location with “WI” in the origin state location and “TOUR/ATLANTA” in the destination city location with “GA” in the destination state location.) The entire “TOUR” in this example might be ATLANTA, GA to DALLAS, TX -- DALLAS, TX to MILWAUKEE, WI – MILWAUKEE, WI to ATLANTA,GA. This allows the carrier to return to the carrier’s home base in one round trip. The shipper may option to

indicate a rate for moving the requested load.

Shippers would then indicate such loads as being available by submitting a zero (\$0) dollar amount as the bid/rate on the invitation to bid, rate and/or communicate screen (ITB). The shippers would then discuss how the carriage should proceed by either requesting carriers to address all legs of the "TOUR" via a new RFB or pre-selecting a carrier who works with either participating shipper. The shippers and the selected carrier all win in the arrangement.

To Post Products on a Combination Master Bulletin Board:

Just as shippers can request bids and/or rates for hauling freight from carriers, selling shippers can advertise the availability of their products and request bids for the purchase of their products from buying shippers. Selling shippers place their available products along with any requirements, similar to shippers placing loads with their requirements, on a combined master bulletin board (this board displays loads, products, services, equipment, tours, etc.).

Selling shippers enter information in a Request For Bid format (RFB) the same as shippers enter load information with the exception that in the origin city and destination city locations the carrier adds the prefix "PROD/" before the city or before a descriptive area. (i.e.: If a shippers product was available in a Milwaukee, Wisconsin warehouse / distribution center, the shipper would enter the following on the RFB: "PROD/MILWAUKEE" in the origin city location with "WI" in the origin state location and the description of the product "HUNTS Tomato Paste" in the

destination city location with “NA” in the destination state location.). Shippers can be specific, general or a combination of the two in the destinations for their products. Quantities, size and unit prices can be included on the bulletin board.

Buying Shippers may then view the board to locate products that meets their needs available in type, location, dates, etc. The shipper then reviews an invite to bid (ITB) for the product(s) that shows all of the selling shipper's product and/or other details / requirements. The buying shipper then can either agree on a fixed rate as dictated by the selling shipper included in the invite information or the buying shipper may place a bid amount that the buying shipper is willing to pay to the other to purchase the product. Selling shippers then select the buying shipper whose price best meets the selling shipper's expectations.

A buying shipper then has the option of opening two or more identical product / load and equipment bulletin boards so that both are on a computer screen at the same time. One board can be sorted and/or filtered for product / loads and the other can be sorted and/or filtered for compatible equipment. The buying shipper can then make equipment selections most appropriate to the specified requirements without having to go back and forth between separate screens.

To Post Services / Leases / Rentals / etc. on a Combination Master Bulletin Board:

Just as shippers can request bids and/or rates for hauling freight from carriers, companies (shippers) offering services, leases, rentals, etc. can advertise the availability of same and request bids or communicate this information to buyers. Offering shippers

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place their available services along with any requirements, similar to shippers placing loads with their requirements, on a combined master bulletin board (this board displays loads, products, services, equipment, tours, etc.).

Offering shippers enter information in a Request For Bid format (RFB) the same as shippers enter load information with the exception that in the origin city and destination city locations the carrier adds the prefix "SERV/", "LEASE/", "RENT/" before the city or before a descriptive area. (i.e.: If a shipper's service, lease, rental was available in a Milwaukee, Wisconsin, the shipper would enter the following on the RFB:

"SERV/MILWAUKEE", "LEASE/MILWAUKEE", "RENT/MILWAUKEE" in the origin city location with "WI" in the origin state location and the description of the service, lease, rental, etc. "TRAILERS one-way anywhere" in the destination city location with "NA" in the destination state location.). Shippers can be specific, general or a combination of the two in the destinations for their products. Quantities, size and unit prices can be included on the bulletin board.

Buying Shippers may then view the board to locate services, etc. that meets their needs available in type, location, dates, etc. The shipper then reviews an invite to bid (ITB) for the product(s) that shows all of the selling shipper's services, etc. and/or other details / requirements. The buying shipper then can either agree on a fixed rate as dictated by the selling shipper included in the invite information or the buying shipper may place a bid amount that the buying shipper is willing to pay to the other to use the service, etc. Selling shippers then select the one or all of the buying shippers.

A buying shipper then has the option of opening two or more identical service, etc. and load bulletin boards so that both are on a computer screen at the same time. One

board can be sorted and/or filtered for services and the other can be sorted and/or filtered for compatible loads. The buying shipper can then make service, etc. selections most appropriate to the specified requirements without having to go back and forth between separate screens.

For example selecting two representative options, when a line in the bulletin board is selected and activated, the shipper could view the ITB 18 or the bid and/or rate report 21, known as the “best 7” report. The report 21 is represented in Fig. 1, and shown in more detail in Fig. 5. As seen in Fig. 5, for an Internet web browser version of the report, there is the proprietor logo and reference number and a shipper load ID in a upper area 60. There is a recap of the origin and destination in a next area 61. The bids and/or rates are shown in the next area 62 in a column format with the carriers indicated only by sort order from the lowest bid and/or rate to the highest in the report. Besides the bid and/or rate price, other data for the carrier profile is included for evaluation by the shipper. The shipper indicates selection of one of the bids and/or rates by selecting the number of the carrier which contains a hyperlink .

As a result of selecting one of the bids and/or rates, the shipper receives a bid and/or rate selection notice seen in Fig. 8. This notice includes the proprietor logo 65, the proprietor reference number 66, the name of the selected carrier 67, the name of a contact person 68 and a phone number of the carrier 69. The time of selection is also noted in area 70. The shipper can then call the carrier to confirm the pickup of the load.

In a further variation of the system, the identity of the shippers and carriers is provided on the ITB’s 18 and Best 7 reports. In this variation, the calculate and find logic 15 in the central processing system 10 limits selection of qualified carriers to a predefined set of

